

REMARKS

A terminal disclaimer is filed herewith, with the appropriate fee, to obviate the nonstatutory double patenting rejection of claims 6-20.

The Examiner rejected claims 6-13 and 14-20 under 35 U.S.C. § 102 as being anticipated by a web site screen shot depicting two products by CNC Automation, Inc. ("CNC"). "[A] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). CNC not only fails to disclose every element of claims 6 or 14 – it does not disclose any claimed limitation.

Claim 6

First, claim 6 recites "a robotic tool changer." The Examiner has cited no robotic tool changer in CNC. Indeed, it is notoriously well known in the industrial arts that Computer Numeric Control (CNC) milling machines such as depicted in the CNC reference are dedicated, stand-alone pieces of equipment. That is, the milling machine head is not removed, and replaced with, a lathe, drill, or other tool. No one of skill in the art would consider a CNC milling machine to comprise or include a "robotic tool changer" – the tool (the milling machine) is never changed.

Next, claim 6 recites "a master module and a tool module adapted to be coupled and decoupled." The Examiner equated a computer depicted in CNC to the master module recited in claim 6, and equated "the machine" to the recited tool module (without specifying which of the two different machines depicted in CNC comprise the tool module). Master and tool components of robotic tool changers are well known in the robotic arts. For example, the Examiner is respectfully directed to U.S. Patents 6,752,037; 6,533,594; 6,375,378; and 6,073,512 – all referring to robotic tool changers comprising "master" and "tool" modules or

plates. Claim terms are presumed to have the ordinary and customary meanings attributed to them by those of ordinary skill in the art. *Sunrace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003); *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003), MPEP § 2111.01 II. The preamble of claim 6 recites “a robotic tool changer,” placing the claim in the robotic arts. The above-referenced patents clearly establish the meaning of “master” and “tool” modules of a robotic tool changer, to those of skill in the robotic arts.

Furthermore, the terms are explicitly defined in Applicant’s Specification at p. 1, line 11 – p. 2, line 3:

In many robotic manufacturing applications, it is cost-effective to utilize a relatively generic robot to accomplish a variety of tasks. For example, in an automotive manufacturing application, a robot may be utilized to cut, grind, or otherwise shape metal parts during one production run, and perform a variety of spot welding tasks in another. Different welding tool geometries may be advantageously mated to a particular robot to perform welding tasks at different locations or in different orientations. In these applications, a tool changer is used to mate different tools to the robot. One half of the tool changer, called the master module, is permanently affixed to a robot arm. The other half, called the tool module, is affixed to each tool that the robot may utilize. When the robot arm positions the master module adjacent the tool module connected to a desired tool, a coupler is actuated that mechanically locks the master and tool modules together, thus affixing the tool to the end of the robot arm. Utilities such as electrical current, air pressure, hydraulic fluid, cooling water, electronic or optical data signals, and the like, may be transferred through the robot changer from the master module to the tool module via mating terminals, valve connections, electrical connectors, and the like, making the utilities available to the selected tool. Tool changers and their constituent couplers are well known in the robotics arts, and are commercially available, such as from the assignee, ATI Industrial Automation of Apex, North Carolina.

It is beyond question that Applicant an applicant is entitled to be his or her own lexicographer. *In re Paulsen*, 30 F.3d 1475, 1480, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994), MPEP § 2111.01 III. Where an explicit definition is provided by the applicant for a term, that definition will control interpretation of the term as it is used in the claim. *Toro Co. v. White Consolidated Industries Inc.*, 199 F.3d 1295, 1301, 53 USPQ2d 1065, 1069 (Fed. Cir. 1999). Any special meaning assigned to a term “must be sufficiently clear in the specification that any

departure from common usage would be so understood by a person of experience in the field of the invention." *Multiform Desiccants Inc. v. Medzam Ltd.*, 133 F.3d 1473, 1477, 45 USPQ2d 1429, 1432 (Fed. Cir. 1998).

Here, Applicant has set out a clear and explicit definition – one that does not depart from common usage, but rather confirms the standard meaning of the terms as used by those of skill in the art. A “master module” is the “one half of the robotic tool changer” that is “permanently affixed to a robot arm.” A “tool module” is “the other half” of the robotic tool changer, that is “affixed to each tool that the robot may utilize.” In light of these explicit definitions – and the plain meaning of the claim terms as understood by those of skill in the art to which the invention pertains – it is clear that a computer is not a master module. The computer in the CNC photographs is not one half of a robotic tool changer, and it is not permanently affixed to a robot arm. Similarly, a CNC milling tool is not a tool module. The milling tool is not the other half of a robotic tool changer, and it is not affixed to a tool (it is a tool). For at least the reason that CNC does not disclose either a master module or a tool module, the § 102 rejection of claim 6 cannot stand.

Finally, claim 6 recites, “a clocked communication bus between said master and tool modules.” The Examiner stated, “inherently the bus line which connects the master and the tool being considered as a clocked communication bus.” To establish anticipation by the doctrine of inherency, extrinsic evidence “must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill” in the art. *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991) (emphasis added). “Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Id.* at 1269, 20 USPQ2d at 1749. See MPEP § 2112 IV.

Nothing in CNC indicates that communication between a computer and a controlled milling machine is necessarily via a clocked communication bus. As those of skill in the art will readily recognize, a Digital-to-Analog Converter (DAC) card in the computer could transform digital commands to analog voltages, and control the operation of the milling machine directly. In this case, CNC would not even have a communication bus, much less a clocked one. Alternatively, the computer may communicate commands to the milling machine via an asynchronous bus that does not include a clock signal, such as the venerable RS-232 serial interface in asynchronous mode. The Examiner twice admits of a wide variety of control implementations on Page 4, in the rejection of claims 7-13 and 15-20, stating that the claimed particulars of a clocked communication bus are a “design choice.” Direct control (*i.e.*, no communication bus at all) and a non-clocked communication bus are additional design choices available to one of skill in the art in controlling a milling machine by a computer.

The Examiner has cited absolutely nothing in CNC that indicates anything about the mode of communications or control between the computer and the milling machine. In particular, the Examiner has not demonstrated that a clocked communication bus is necessary to the operation of a CNC milling machine. As such, it is mere speculation that the milling machines depicted in the CNC reference include a clocked communication bus. Inherency requires more, as a matter of law. For at least the reason that the Examiner has failed to demonstrate a clocked communication bus under the doctrine of inherency, the § 102 rejection of claim 6 must be withdrawn.

Claim 14

Claim 14 is directed to a method of communicating information between a tool module of a robotic coupler and a robotic system communications network, by supplying tool information from the tool module over a serial communication bus to a robotic system communications network node on a master module, and from the master module network node to the robotic

system communications network. The Examiner has broadly cited to “figs. on page 1 of 2” for all recited claim limitations.

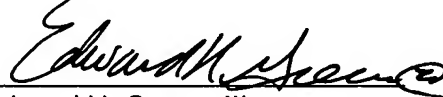
As discussed above, the figures do not disclose master or tool modules of a robotic tool coupler. Nor do the figures disclose a robotic system communications network node on the master module, nor a serial communication bus between the master and tool modules. In rejecting claims for want of novelty or for obviousness, the particular part of a prior art reference relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified. 37 CFR § 1.104(c)(2). See MPEP § 706. A broad citation to two photographs to show anticipation of specific, functionally defined claim limitations is insufficient to show anticipation. Furthermore, claim 14 is a method claim. Even if the elements recited in claim 14 were to be found in the CNC reference, the reference does not show, and the Examiner has not addressed, any method of their use. For at least the reason that CNC does not disclose a master or tool module of a robotic tool coupler, a robotic system communications network node on the master module, or a serial communication bus between the master and tool modules – or any method of communicating information between a tool module of a robotic coupler and a robotic system communications network – the § 102 rejection of claim 14 must be withdrawn.

Conclusion

Applicant notes that claims 1-5 and 21-26 are allowed. For the above reasons, the § 102 rejections of claims 6 and 14 cannot stand. As all dependent claims include all limitations of their respective parent claim(s), claims 7-13 and 15-20 also exhibit patentable novelty over the prior art of record. All pending claims are in condition for allowance. Applicant respectfully requests prompt notice to this effect.

Respectfully submitted,

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A handwritten signature in cursive script, appearing to read "Edward H. Green, III", written in black ink.

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